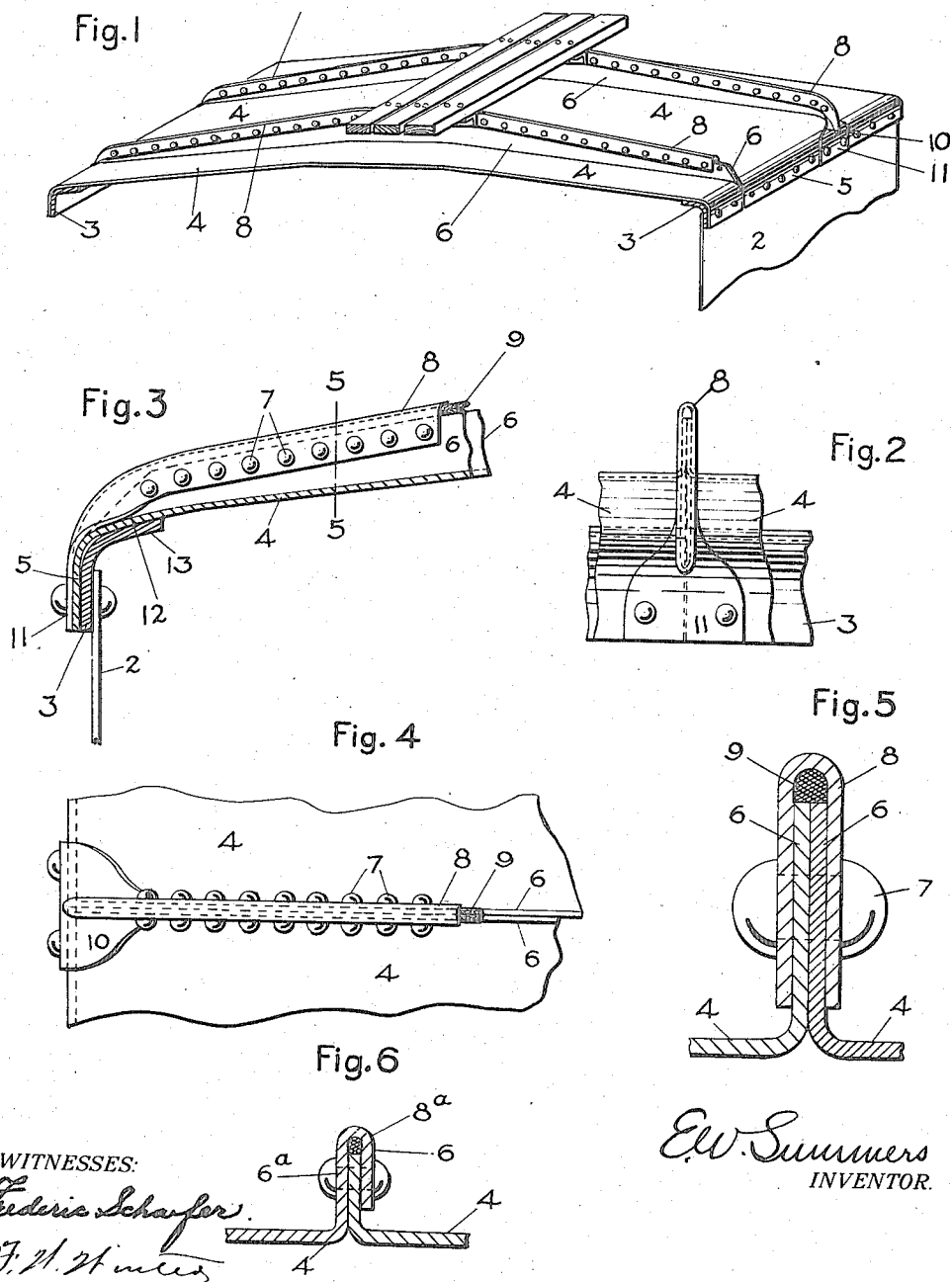


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RAILWAY CAR ROOF CONSTRUCTION.
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1,133,335.

Patented Mar. 30, 1915.



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RAILWAY-CAR-ROOF CONSTRUCTION.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDGAR WEBSTER SUMMERS, a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Railway-Car-Roof Construction, of which the following is a specification.

This invention relates to roof structures for railway cars.

The object of the invention is to provide a metallic car roof which is self-supporting, which is waterproof or tight, which is of simple design, easy of construction and adapted to withstand hard service, which provides clear headroom inside the car, and one so constructed that the connections for the running boards or other attachments can be made without puncturing the roof.

The invention comprises the construction and arrangement of roof members herein-after described and claimed.

In the accompanying drawing Figure 1 is a perspective view showing a portion of the roof structure and connected parts; Fig. 2 is a side elevation of a fragment of said roof; Fig. 3 shows a portion of the roof taken on a section transversely of the car; Fig. 4 is a plan view of the portion shown in Fig. 3; Fig. 5 is a detail section taken on the line 5-5, Fig. 3; and Fig. 6 is a similar view showing a modification.

The improved roof may be applied to any character of car body. In the drawings a portion of the car side is indicated at 2, as formed from metallic plates, but this can be varied within wide limits. Suitably secured at the upper edges of the car sides are eaves plates 3 which are formed by a metallic member of modified angle form, having a vertical leg for riveting or otherwise securing the same to the car sides, and having its other leg inclined upwardly and curved to the same contour as the roof plates 4, and fitting closely against the under face of the latter.

The roof plates 4 extend transversely of the car, preferably continuously from side to side of the car, and preferably having their side edges bent downwardly, as at 5, to form drips or eaves, and are secured to the car sides, as by riveting. The meeting edges of these roof plates are flanged outwardly or upwardly, forming up-standing flanges 6, which flanges are arranged in contact to form a standing seam, and are suit-

ably secured together, as by rivets 7. These vertical flanges not only serve as a means for joining roof plates together and as a means for turning the water from the joint, but also serve as roof-supporting carlines. In order to adapt them most efficiently for the latter purpose, said flanges are of increasing depth from the sides of the cars inwardly toward the center, as shown in Figs. 1 and 3, thereby giving them the necessary strength to carry the roof load. These carlines are further strengthened, and are also rendered waterproof or tight, by means of a suitable cover or cap member, folded over the edges of said strips. This covering strip or member may be an extension of one of the flanges, as shown at 8^a in Fig. 6, but preferably is an inverted U-shaped strip 8, fitting over the flange and secured thereto by the rivets 7 which secure the adjacent roof plates together. This cover strip not only serves to shed water from the joint, but materially strengthens the carline and enables the same more effectively to carry the roof load.

Inasmuch as the joints between the metallic members may not be absolutely tight, there is danger of water working from a driving rain or by capillary attraction upwardly along the outer faces of the flanges 6 and between the latter and the sides of the cover strip 8. To prevent any such water from entering through the joint between the flanges 6, suitable packing 9 is placed between the edges of the flanges 6 and the cover strips 8. This packing material can be of any suitable yielding or elastic substance, such as oakum, hemp, asbestos or like fibrous material, and is tightly squeezed between the edges of the flanges 6 and the top of the cover strip 8, so as to form an efficient packing against the entrance of water. Preferably, this packing will be saturated with some suitable liquid material, such as paint, asphaltum, oil or other substance which acts both as a preservative of the fibrous or other packing material and also itself acts as a seal of the joint. The outer ends 10 of the cover strips 8, are left flat, and are extended downwardly over the eaves or drips, as at 11, so as to effectually close the joint at the ends of the up-turned flanges 6 and prevent water from driving in at this point. These end portions extend downwardly sufficiently to prevent moisture

from creeping upwardly by capillary attraction. These flattened out end portions 10 fit snugly against the car roof, and the joints between the same and the roof sheets, such as at the points 12, can be filled with paint, asphaltum or the like so as to shed the water and cause the same to run off at the sides instead of between the ends of the cover strip and the roof sheets.

Fig. 6 shows a modification in which the cover strip 8^a, instead of being a separate piece, is an extension of one of the flanges 6^a of one of the roof sheets. In other particulars this is the same as the main form.

The inwardly extending flanges 13 of the eaves plates 3, it will be observed, fit snugly against the inner faces of the roof sheets and conform to the contour thereof, instead of extending inwardly horizontally, as is usual in car constructions. As a consequence the roof sheets are supported inwards from the eaves, and any water that might find its way upwardly by capillary attraction is more likely to flow downwardly and outwardly than upwardly and inwardly.

The roof construction described is such that there are no holes or openings from the outside inwardly. All of the securing members or rivets are horizontal, and extend merely through the up-standing seams of the roof plates. These upstanding seams also provide convenient means for connecting to the roof the clips for supporting the running boards, guard rails and the like without puncturing the roof plates themselves. As a consequence the roof can be made perfectly waterproof or tight. Furthermore, the construction is such that there are no internal carlines, thus giving clear head-room within the car, and at the same time the roof is entirely self-sustaining by reason of the external carlines formed by the joints or seams, and their connections to the side plates. Wear and tear upon the roof sheets is lessened by the outside carlines because of the support which they afford to the roof sheets from eaves to eaves at their meeting edges, and because of the rigid connection between the ends of the carlines and the side plates, and the form of the side plates.

What I claim is:

1. In a car roof, the combination of adjacent metallic roof plates extending transversely of the car from eaves to eaves and provided on their adjoining edges with external vertical flanges, and a U-shaped cover strip fitting over said flanges and rigidly secured thereto throughout its length, the ends of said cover strip being spread out and extending over the eaves and secured at their lower ends.

2. In a car, the combination with the side plates of adjacent metallic roof plates extending transversely of the car and sup-

ported at their ends on said side plates, the adjoining edges of said roof plates having external vertical flanges, said flanges extending uninterruptedly from side to side of the car and increasing in depth from the car sides inwardly and forming carlines, and U-shaped cover strips over said flanges and rigidly secured thereto throughout their length, the ends of said cover strips extending over the eaves and being secured at their lower ends to said side plates.

3. In a car, the combination with the side plates of metallic roof plates extending transversely of the car and having downturned end flanges and upturned side flanges, said end flanges being secured to said side plates, and said side flanges extending uninterruptedly from side to side of the car and having cover strips rigidly secured thereto throughout their length forming carlines, the ends of said cover strips being turned down over the eaves and secured to said side plates.

4. In a car, the combination with the side plates of metallic roof plates extending transversely of the car and provided on their adjoining edges with external vertical flanges, said flanges extending uninterruptedly from side to side of the car, cover strips secured thereto throughout their entire length and thereby forming carlines, the ends of said roof sheets and cover strips being turned down outside said side plates and rigidly secured thereto, said side plates conforming to the under sides of the roof sheets and supporting them adjacent to their ends, whereby bending of the roof sheets at their end angles is prevented.

5. In a car roof, the combination of adjacent metallic roof plates extending transversely of the car and provided on their adjoining edges with external vertical flanges, said flanges extending uninterruptedly from side to side of the car and increasing in depth from the car sides inwardly, a U-shaped cover strip fitted over said flanges and rigidly secured thereto throughout their entire length, said flanges and cover strip forming a carline, lengthwise members along the eaves, and means for securing the ends of said cover strip and the ends of said roof sheets thereto, whereby said cover strip and flanges support and stiffen said roof transversely of the car and cause said lengthwise members to function therewith.

6. In a car, in combination with metal side plates, metal roof plates arranged side by side crosswise of the car and bent down over the side plates at their ends, the side margins of said roof plates being flanged up, seam covers of inverted U-shape covering adjacent side marginal flanges of said roof plates, said seam covers being rigidly secured to said flanges to form carlines and having their ends turned down over the side

plates, the downturned ends of said seam covers and roof sheets being secured to said side plates.

5 7. In a car, in combination with metal side plates each having a vertical member and a substantially horizontal member extending inward from the top of the vertical member, metal roof plates arranged side by side crosswise of the car and bent down over the
10 side plates at their ends, the side margins of said roof plates being flanged up, seam covers of inverted U-shape covering adjacent side marginal flanges of said roof plates, said seam covers being rigidly secured to

said flanges to form carlines and having 15 their ends turned down over the side plates, the top members of said side plates conforming to the under surface of the roof plates adjacent thereto, and the downturned ends of said seam covers and roof sheets being secured to said side plates. 20

In testimony whereof, I have hereunto set my hand.

EDGAR WEBSTER SUMMERS.

Witnesses:

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